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**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU**  
**MC NL PT SE TR**  
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(30) Priority: **16.06.2000 JP 2000181190**

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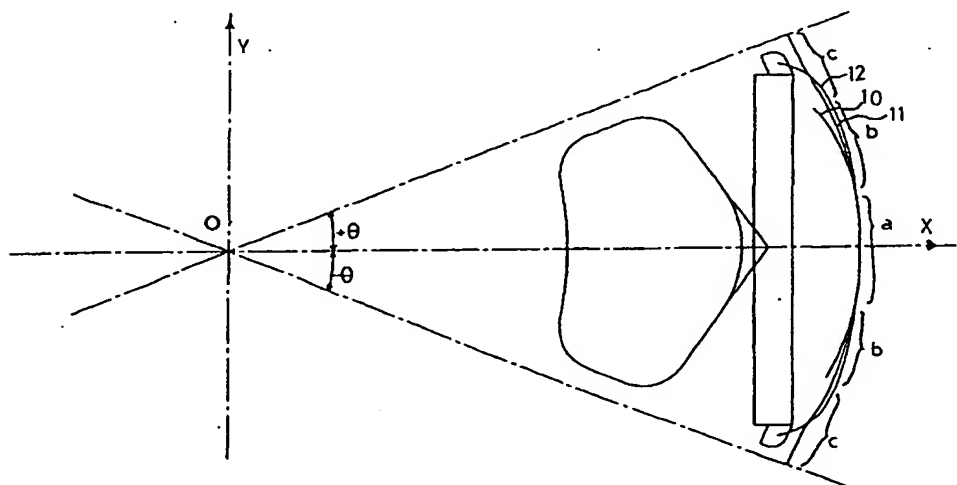
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(54) **Rotor for synchronous motor**

(57) A rotor for a synchronous motor capable of increasing output torque and reducing inductance. An outer periphery of each pole of the rotor in cross section perpendicular to an axis of the rotor is defined on the basis of a curve of a hyperbolic function (10). Since an outer periphery of one pole of the rotor at a central apex portion (a) is substantially identical with that of a conventional rotor defined by a circular arc (11), the output

torque of the synchronous motor using this rotor is not decreased. At side portions (b) adjacent to the central apex portion (a), the outer periphery of the rotor pole is positioned inwardly, i.e. closer to the axis (O) of the rotor than the outer periphery defined by the circular arc (11), so that a gap between the outer periphery of the rotor pole and an inner periphery of a stator is made greater at the side portions (b) to reduce the inductance of the synchronous motor.

**FIG. 6**





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## EUROPEAN SEARCH REPORT

Application Number  
EP 01 30 4932

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Y	EP 0 392 028 A (FANUC LTD) 17 October 1990 (1990-10-17) * the whole document *	1-8	H02K1/27
Y	PATENT ABSTRACTS OF JAPAN vol. 015, no. 479 (E-1141), 5 December 1991 (1991-12-05) & JP 03 207256 A (SHINKO ELECTRIC CO LTD), 10 September 1991 (1991-09-10) * abstract *	1-8	
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A	EP 0 445 308 A (FANUC LTD) 11 September 1991 (1991-09-11) * column 1, line 33 - line 45 * * column 4, line 6 - line 58 * * figures 4,5 *	1-8	
A	US 4 748 360 A (AMEMIYA YOICHI ET AL) 31 May 1988 (1988-05-31) * column 1, line 10 - line 29 * * column 3, line 65 - column 5, line 11 *	1-8	
A	EP 0 365 689 A (FANUC LTD) 2 May 1990 (1990-05-02) * page 1, line 33 - line 35 * * page 6, line 27 - page 7, line 22 *	1-8	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7) H02K
Place of search MUNICH		Date of completion of the search 5 November 2003	Examiner Mayer-Martin, E-M
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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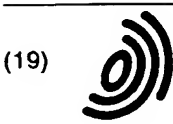
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(11) **EP 1 164 684 A3**

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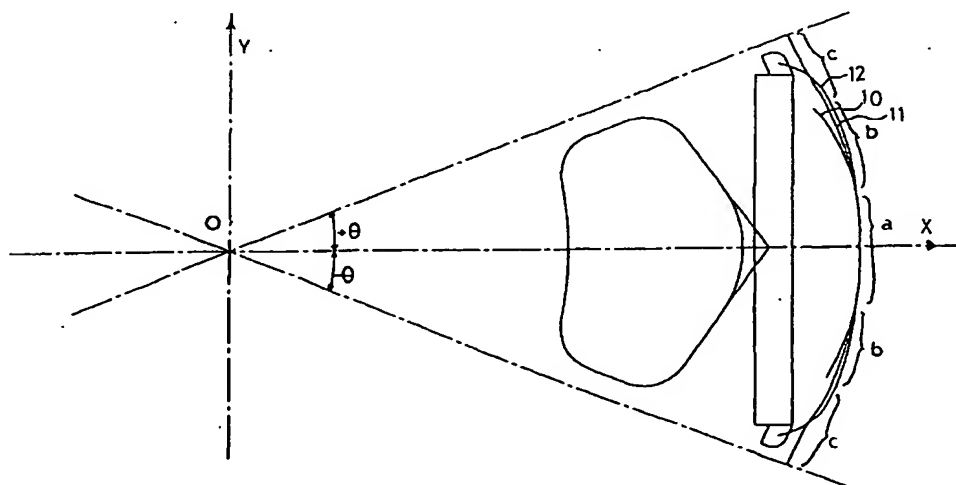
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**FIG. 6**



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